

# Utilizing Warm-Up Games in MOOC Discussion Forums

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**Abstract.** Instructors of Massive Open Online Courses frequently use written introductions in a discussion forum to introduce learners. To offer a more visual, interactive, and purposeful approach, we adapted "warm-up games" from the context of design thinking and improvisational theatre for the discussion forums of two MOOCs. In this paper, we explain the context and aims of these games, describe our set-up, and conclude that warm-up games help to boost discussion forum usage and warm-up game activity may be used as an indicator for assignment performance.

**Keywords:** Learner engagement, warm-up games, discussion forum, Massive Open Online Courses

## 1 Introduction

In every Massive Open Online Course (MOOCs), course instructors need to introduce (or onboard) participants to the platform, community, and course content. They often use introduction posts in the discussion forum to accomplish this. In this paper, we describe how we adapted typical "warm-up games" from the context of design thinking<sup>1</sup> and improvisational theatre for the discussion forums of two MOOCs. In this way, we aimed to facilitate the use of discussion forums and offer participants a playful entry point to the content.

As instructors, we have experienced courses with large numbers of first-time MOOC participants who need to understand the platform, the role of the community and course structure before they can actively explore the learning content. We conduct MOOCs on design thinking skills, which is a novel topic to many participants and may furthermore differ to the teaching style of other courses.

**Aim 1: As course instructors, we aim to introduce participants to the course content and community in a playful way.**

Discussion forums have become an indispensable platform for interaction and communication in MOOCs [1]. Critics emphasize that forum discussions often only involve a minority of course members, though, and a small number of vocal students dominate the threads [2]. Numbers of students participating in the forum have been reported as low as 3% [3]. Research suggests that learners who participate in the discussion forum are more likely to complete a course, and that superposters show

<sup>1</sup> Design thinking is a user-centered approach for problem solving and idea development. Stanford University initially extended and developed Design Thinking education programs. The approach has been implemented in organizations internationally

higher learner performances than other participants [1], [2]. Kizilcec, Piech and Schneider hypothesize that participation in discussion forums creates a positive feedback loop for some learners, because they receive social and informational input [8].

**Aim 2: As course instructors, we strive to introduce learners to the discussion forum, which might have a positive impact on participants.**

In our MOOCs, we deal with the topic of design thinking skills. A common aspect in physical design thinking training are warm-ups. Warm-ups are short, playful exercises preceding work or learning sessions. They are often used in design thinking sessions to transition participants into certain work modes and to support team dynamics [5], [6]. Warm-ups are derived from the context of improvisational theatre. Huffacker and West describe their objectives of including improvisational techniques into a business curriculum as creating an environment conducive to learning, facilitating experiential learning, and facilitating creative, nonlinear idea exchange and colearning [8]. As a result, instructors have experienced high levels of engagement with the course content [7], [8] and more genuine classroom discussions, with learners embracing their own creativity.

**Aim 3: Warm-ups and improvisational techniques have been successfully used in design thinking workshops and a variety of physical classroom sessions. We aim to adapt specific aspects of warm-up games for a MOOC context, achieving some of the positive results that instructors experienced in live classrooms.**

## 2 Warm-Up Games in two Design Thinking MOOCs

The authors conceptualized and ran two consecutive MOOCs on different design thinking skills in 2017 and 2018. The first MOOC, subsequently referred to as the *Empathy MOOC*, focused on the design research skills of identifying striking user behavior and conducting qualitative interviews. 5491 learners enrolled, 3040 learners participated actively<sup>2</sup>. The second MOOC, subsequently referred to as the *Synthesis MOOC*, targeted the skills of synthesizing research data and facilitating idea generation sessions. 3641 learners enrolled, 1604 learners participated actively. For both MOOCs, we adapted design thinking warm-up games.

In segment 1, we described our general aims of introducing learners to the course content and community, motivating learners to use the discussion forum, and adapting specific aspects of warm-up games to reap their positive impact on learners. Based on these aims for our MOOC, we defined the **goals for the MOOC discussion forum warm-up games**, namely to

1. encourage learners to use the discussion forum and thus making them more familiar with this platform feature
2. create a sense of community within the course
3. create a joyful atmosphere within the course community
4. create an atmosphere of sharing personal stories and reducing pressure
5. encourage creative energy

<sup>2</sup> We define enrolled learners as all learners that enrolled until the end of the active MOOC. We define active learners as enrolled participants who showed up in the course at least once.

6. introduce the course topic in a playful way, offering an easy entry point to the learning content

Adapting a design thinking warm-up to the structure of a MOOC discussion forum context is challenging. The games had to be open for all course participants, take place within the limits of a discussion forum (entries with text and images), and allow for communication.

For the Empathy MOOC, we adapted a warm-up game called “My Object”. In physical design thinking classes, participants play this game by bringing a personal object to class. Next, they swap this object with a partner. Both players go to the front of the class and introduce their partner’s object, inventing a story about the special meaning of this object. This warm-up helps to introduce participants to each other, establishes a joyful atmosphere and motivates participants to explore their creativity. We adapted the game to the MOOC discussion forum as “My Three Objects”: Participants were asked to look for one artefact that is practical and useful to them, one artefact that they have to use but there is room for improvement, and one artefact that is valuable to them. The learners were free to visualize or arrange these objects in any way they wanted, adding three icons (star, crying face, heart) to clarify the meaning of each object. They uploaded a photo (or drawing) of their objects to the discussion forum, and wrote explanatory sentences for each object’s meaning. All three course instructors started the game by sharing their own objects, encouraging participants to join the warm-up. With this game, we hoped to achieve our goals for using warm-ups by

- offering a playful introduction to the course’s topic of observing people, objects and contexts carefully: by questioning their own relationship to objects from their daily life, participants already entered an attentive mindset
- offering an introduction to visual expression by encouraging participants to draw, photograph, visualize their objects in any way
- creating a sense of community by revealing similarities and common interests among users

For the Synthesis MOOC, we adapted the “Bingo” warm-up. To play this game in physical design thinking workshops, facilitators provide Bingo templates for all participants. The fields are usually filled with unusual or exciting experiences, e.g. “someone who has done Bungee jumping” or “someone who has visited four continents”. Often, facilitators add fields that are related to the context or the content of the class, e.g. “someone who works in an innovative field”. Participants wander around the room, trying to find fellow participants who fulfil one or more of the categories and let them sign the field. If a player has a template where a row of fields is filled with signatures, she will call out “Bingo!” - similar to the usual tea time Bingo game. In the MOOC discussion forum adaptation of this warm-up, we simplified the game greatly. We designed a template with nine fields that a) covered activities related to creativity or creating objects; b) described conditions related to work life and learning; c) showed two rare physical achievements; and d) a category of information that most humans love to share: “Who owns a pet?”. In an introductory video, we explained which category we fit in and why. We then sent learners to the game’s discussion forum topic, where the template showing all categories was posted at the top. Participants chose a category that they identified with and posted a picture showing the respective activity and object. They furthermore included as hashtag with

the category title, e.g. #marathon or #team. The goal of the game was to fill all categories with the MOOC community. To spur engagement, updated templates showing current category numbers were posted after the first and fourth week of the course. Through this game, we hoped to achieve our goals for using warm-up exercises by

- offering Bingo categories that helped participants to acknowledge their existing creative capabilities and their drive towards learning new skills
- offering Bingo categories that mirror important aspects of the design thinking mindset and methodology, such as teamwork and visual expression
- offering Bingo categories that were “easy” to fulfill, such as “who owns a pet” or “who learnt a new skill?”, encouraging every learner to participate regardless of their background
- creating a sense of community by revealing similarities and common interests among users

By introducing these warm-up games to the discussion forums of our MOOCs, we were interested in answering two questions:

**Question A: Can we motivate learners to reply in the discussion forum through a warm-up game?**

**Question B: Were learners who received high points in the peer-reviewed course assignments active in the warm-up games?**

### 3 Results

#### 3.1 Instructor Experiences

Even though the warm-up games were neither mandatory nor graded, 900 replies were posted in the Empathy MOOC warm-up game. In the Synthesis MOOC, 669 replies were posted. As course instructors, we noted similar participant behavior in both game topics:

- Learners interacted with each other, commenting on similar hobbies, likes, dislikes, and problems
- Learners maintained a very friendly atmosphere, complimenting each other and recommending material regarding each other's interests, for example podcasts, books, etc.

Scrolling through a topic with images worked well to welcome participants and encourage interaction: The visual aspect of photos and drawings versus introduction texts helped in keeping an overview, connecting points of interest and pointing out exciting details.

Regarding the two games in the Empathy and the Synthesis MOOC, we noticed different advantages. The "Three Objects" game transitioned participants into the observational working mode: many learners already noticed product shortcomings, interesting usage habits, or acknowledged the reasons why objects may hold special meanings to users. These abilities are part of the skill of Observation, and thus marked a first step into the design thinking work mode. A large number of replies showed that participation in this warm-up game was easy for learners.

The "Bingo" game in the Synthesis MOOC had an even lower inhibition level: in the times of Facebook and Instagram, participants from all ages groups seem to be happy to share images from their personal lives in a MOOC forum. With every participant easily fitting into one of the nine categories, learners shared a wide range of images. This game worked well for connecting participants, because finding similarities in clearly defined categories is easier and, simply put: human beings just love complimenting each other's pets.

### 3.2 Top 5% Assignment Participants

Researchers have examined the relation between forum activity and course completion or learning performance. According to Onah, Sinclair and Boyatt, completing learners are likely to have made more forum posts than non-completers [1], [2] and completing students exhibit higher levels of activity on the discussion board compared to auditing, disengaging, and sampling students [4]. Superposters have a higher learning performance than average forum participants [1].

During the Empathy MOOC, learners had to take two assignments: one on Observation, and another one on Qualitative Interviewing. For this research, we will consider the first assignment. 932 participants successfully uploaded their finished Observation assignment. Subsequently, they reviewed the assignment by peers according to a list of rubrics and nominated assignments they deemed especially noteworthy. Sorted by the number of points awarded and by the number of nominations given by peers, we examined the warm-up game activity of the top 5% learners in the assignment. Out of these top 5%, which consisted of 47 learners, 30 had participated in the warm-up game, accounting for 63,83% in the sample.

In the Synthesis MOOC, learners uploaded one assignment task. 392 learners successfully finished the assignment. The top 5% of these assignment participants, again sorted by the number of points and nominations awarded by peers, consisted of 20 learners. 35% of these (7 learners) participated in the course's warm-up game. Our results are thus in line with similar findings from studies mentioned above. To summarize our results, we revisit our research questions:

#### **Question A: Can we motivate learners to reply in the discussion forum through a warm-up game?**

With 900 replies in the Empathy MOOC (in comparison to 3040 active learners) and 669 replies in the Synthesis MOOC (in comparison to 1604 active learners), the warm-up games helped to guide considerable numbers of participants into the discussion forum.

#### **Question B: Were learners who received high points in the peer-reviewed course assignments active in the warm-up games?**

Learners who belonged to the top 5% of assignment participants were likely to have participated in the warm-up games: 63,83% in the Empathy MOOC and 35% in the Synthesis MOOC. The lower warm-up game activity number in the Synthesis MOOC sample is of interest to us: Further research could reveal whether the number is lower because participants had already taken part in the first MOOC's warm-up game and were not motivated to participate again. We hypothesize that warm-up game activity can be an indicator for further successful activity in the course assignments.

## 4 Conclusion and Recommendations

In this paper, we describe our development of warm-up games for MOOCs with the aims of onboarding learners to the course content and community, drawing participants in the discussion forum, and to profit from some of the positive impacts witnessed in classroom adaptations of warm-up games. We explained which key aspects of these short games we adapted to the restricted frame of a MOOC discussion forum. As course instructors, we observed positive interaction between learners and enthusiasm with the games. The atmosphere was friendly and supportive, and learners opened to the course content.

Interpreting data from the course, we conclude that the warm-up games successfully led participants into the discussion forum, and that high-scoring assignment participants were mostly active in the warm-up games. We can thus recommend the adoption of warm-up games for MOOCs: They pose a visual, playful, and communicative alternative to basic "introduction" topics in discussion forums.

Our results could be enhanced further by examining a larger sample of successful assignment participants, and by comparing MOOCs which feature warm-up games to courses with text-based introductions. Moreover, the learner crowd drawn to a design thinking course might be more open towards experiments, playful approaches, or visual expression than other learning communities. For this reason, we especially encourage the adoption of warm-up games in differently themed MOOCs.

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